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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/930,864	08/16/2001	Seth Lederman	C035795/0126287	3603

7590 06/29/2006

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EXAMINER	
WAX, ROBERT A	

ART UNIT	PAPER NUMBER
1653	

DATE MAILED: 06/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/930,864	LEDERMAN ET AL.	
	Examiner	Art Unit	
	Robert A. Wax	1653	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 April 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-55* is/are pending in the application.

4a) Of the above claim(s) *17-55* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 August 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicants' election of Group I, claims 1-16 in the reply filed on April 25, 2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

The requirement is still deemed proper and is therefore made FINAL.

Priority

2. The current application filed on August 16, 2001 claims priority to provisional application, 60/225,938 filed on August 17, 2000.

Drawings

3. The drawings are objected to because Figure 6A is missing the gray lines referred to in the specification and Figure 6 is so blurred that it does not show what is supposed to be shown. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If

a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities: On page 5, line 1, "effect" should be "affect"; on page 7, line 16, "asteriz" should be "asterisk"; the specification talks about p62 (1-362) (and 1-391 on page 52, line 18) but Figs 4 and 5 say 1-393. Which is correct? On page 15, line 15, "affect" should be "effect"; on page 18, line 7, "deprotienation" should be "deproteination"; on page 25, line 20, should "Human artificial chromosomes (Has)" be "Human artificial chromosomes (Hacs)"? On page 27, line 11, "wigler" should be "Wigler"; information appears to be missing beginning at page 56, line 10: "[contrast" does not make sense, line 21, "[-expression" does not make sense. This bracket appears several more times after page 56 as well.

Finally, pages 66-87 appear to be from a different application. There may be more such errors, these are the errors spotted on a read-through of the specification.

Appropriate correction is required.

Claim Rejections - 35 USC § 112, First ***Paragraph, Written Description***

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 2, 4, 10-14 and 16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The instant claims are directed to a polypeptide that is at least 80% identical to SEQ ID No.: 1 and pharmaceutical compositions thereof.

The Guidelines for Examination of Patent Applications Under the 35 U.S.C. 112, Paragraph 1, "Written Description" Requirement, published at Federal Register, Vol. 66, No. 4, pp. 1099-1111 outline the method of analysis of claims to determine whether adequate written description is present. The first step is to determine what the claim as a whole covers, i.e., discussion of the full scope of the claim. Second, the application should be fully reviewed to understand how applicant provides support for the claimed

invention including each element and/or step, i.e., compare the scope of the claim with the scope of the description. Third, determine whether the applicant was in possession of the claimed invention as a whole at the time of filing. This should include the following considerations: (1) actual reduction to practice, (2) disclosure of drawings or structural chemical formulas, (3) sufficient relevant identifying characteristics such as complete structure, partial structure, physical and/or chemical properties and functional characteristics when coupled with a known or disclosed correlation between function and structure, (4) method of making the claimed invention, (5) level of skill and knowledge in the art and (6) predictability of the art. For each claim drawn to a single embodiment or species, each of these factors is to be considered with regard to that embodiment or species. For each claim drawn to a genus, each of these factors is to be considered to determine whether there is disclosure of a representative number of species that would lead one skilled in the art to conclude that applicant was in possession of the claimed invention. Where skill and knowledge in the art is high adequate written description would require fewer species to be disclosed than in an art where little is known; further, more species would need to be disclosed to provide adequate written description for a highly variable genus.

First, what do the claims as a whole cover? Claims 2, 4, 10-14 and 16 are directed to a polypeptide that is at least 80% identical to SEQ ID No.: 1 and pharmaceutical compositions thereof. Second, how does the scope of the claims compare to the scope of the disclosure? The disclosure provides the sequence of the polypeptide having SEQ ID No.: 1 and contains the same language found in claims 2,

4, 10-14 and 16 regarding the 80% identity. The disclosure contains no examples of polypeptides having sequences that have at least 80% identity to SEQ ID No.: 1.

Third, the factors need to be considered.

(1) What was actually reduced to practice?

Clearly, the polypeptide having SEQ ID No.: 1 was reduced to practice.

(2) Is there disclosure of drawings or structural chemical formulas?

SEQ ID No.: 1 is disclosed. There is no disclosure of any polypeptides other than SEQ ID No.: 1 and no examples of polypeptides at least 80% identical to SEQ ID No.: 1.

(3) Are there sufficient relevant identifying characteristics disclosed?

The specification is devoid of any characteristics that would define which polypeptides at least 80% identical might have that would give them the same function as the polypeptide having SEQ ID No.: 1. There are also no assays presented that would permit one of skill in the art to determine which characteristics that would define which polypeptides at least 80% identical might have that would give them the same function as the polypeptide having SEQ ID No.: 1.

(4) Is there at least one method of making the claimed invention disclosed?

Given the identity of the polypeptide, one of skill in the art could easily synthesize all of the polypeptides at least 80% identical to SEQ ID No.: 1.

(5) What is the level of skill in the art and what knowledge is present in the art?

The level of skill in this art is high, about that of a PhD scientist with several years' experience.

The prior art shows that p62 is somehow related to NF-6B and TRAF-3 (as discussed in the specification).

(6) What is the level of predictability of the art?

The level of predictability in this art is very low. The specification teaches that the mechanism by which p62 works to translocate NF-6B across the nuclear membrane is poorly understood and the function of the claimed fragment of p62 is understood even less. With such minimal understanding of how the protein performs its function there is no way to predict which 20% of the sequence could be altered and still maintain the function of the parent polypeptide, that having SEQ ID No.: 1. The structure to function relationship is not set forth at all which leaves out the principal piece of information by which to predict which changes might be tolerated from a functional viewpoint.

Thus, having analyzed the claims with regard to the Written Description guidelines, it is clear that the specification does not disclose a representative number of species which would lead one skilled in the art to conclude that applicant was in possession of the claimed invention.

Claim Rejections - 35 USC § 112, Enablement

7. Claims 1 - 16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The instant claims read on a polypeptide having SEQ ID No.: 1 and polypeptides that are at least 80% identical to SEQ ID No.: 1 and pharmaceutical compositions thereof. Thus, the claims read on any polypeptide that is 20% different from SEQ ID No.: 1. The scope of the instant claims is not commensurate with the enablement of the instant disclosure, because practice of the claimed invention would require undue experimentation by an artisan of ordinary skill in the art.

The factors to be considered in determining whether undue experimentation is required are summarized In re Wands 858 F.2d 731, 8 USPQ2nd 1400 (Fed. Cir, 1988). The court in Wands states: "Enablement is not precluded by the necessity for some experimentation such as routine screening. However, experimentation needed to practice the invention must not be undue experimentation. The key word is 'undue,' not 'experimentation.' " (Wands, 8 USPQ2d 1404). Clearly, enablement of a claimed invention cannot be predicated on the basis of quantity of experimentation required to make or use the invention. "Whether undue experimentation is needed is not a single, simple factual determination, but rather is a conclusion reached by weighing many

factual considerations." (Wands, 8 USPQ2d 1404). The factors to be considered in determining whether undue experimentation is required include: (1) the quantity of experimentation necessary, (2) the amount or direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.

In the instant case, (1) the amount of experimentation is large because the number of polypeptides that are at least 80% identical to SEQ ID No.: 1 is large; (2) the amount of guidance provided by the specification is zero since there is no disclosure as to which 20% of the polypeptide having SEQ ID No.: 1 could be changed while retaining the function of inhibition of the translocation of activated NF-6B across a nucleic membrane. One of skill in the art would have no idea what structural characteristics might make one peptide have the alleged activity and another have some different activity or no activity at all. Continuing, (3) the specification is totally devoid of any working examples of polypeptides that are at least 80% identical; as for the next Wands factor, (4) the nature of the invention is the disclosure of a body of research attempting to establish that p62 (1-393) inhibits the translocation of activated NF-6B across a nucleic membrane with no indication as to the medical significance of that inhibition. The prior art (5) shows that p62 is somehow related to NF-6B and TRAF-3 (as discussed in the specification); (6) the relative level of skill in this art is very high; (7) the predictability of the art is zero since even a single amino acid change can drastically alter the activity of a protein. A good example of this is hemoglobin in which

a single amino acid change destroys the function of the protein. Finally, (8) the claims are enormously broad because of the vastly different polypeptides encompassed within the 80% limitation.

Based on this analysis, the conclusion that it would require undue experimentation to practice the instant invention is inescapable.

Claim Rejections - 35 USC § 101 and 35 USC 112, First Paragraph

8. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9. Claims 1-16 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a specific and substantial asserted utility or well-established utility.

Claims 1-16 are drawn to a polypeptide having SEQ ID No.: 1, polypeptides that have at least 80% identity to SEQ ID No.: 1 and pharmaceutical compositions thereof. Clearly, the pharmaceutical compositions are intended to be administered to patients in order to obtain the asserted benefits therefrom. It is not as clear, however, what exactly those benefits would be.

Applicants state, at page 5, lines 2 and 3 of the specification, that the polypeptides of the present invention regulate T cell-dependent antibody production against antigens and provide new immunotherapies and treatments. The discussion in

paragraphs [0001] – [0006] concludes with the suggestion that "TRAF-3 mediated NF-6B activation plays a role in T-dependent antibody production." It is not until paragraph [0009] that the fragments of p62 nucleoporin polypeptide are even mentioned with the conclusory statement repeated above.

However the administration of p62 (1-393) to "regulate T cell-dependent antibody production against antigens and provide new immunotherapies and treatments" is not considered a specific utility because, even if p62 (1-393) regulates T cell-dependent antibody production in general, there is no specific disease or condition named that administration of p62 (1-393) is stated to combat. Administration of p62 (1-393) would apparently inhibit the translocation of activated NF-6B across a nucleic membrane, according to paragraph [0037] of the specification but it is unclear what the benefit of such inhibition would be to any healthy individual or to a patient suffering from some non-specified malady. The specification does not explain why anyone would want his or her translocation of NF-6B across a nucleic membrane to be inhibited. Even accepting the discussion in the specification about what p62 (1-393) may do in the cell does not translate into a specific utility for the p62 (1-393) or a pharmaceutical composition thereof.

In Brenner v. Manson, 148 U.S.P.Q 689 (Sup. Ct., 1966), a process of producing a novel compound that was structurally analogous to other compounds which were known to possess anticancer activity was alleged to be useful because the compound produced thereby was potentially useful as an anti-tumor agent in the absence of evidence supporting this utility. The court expressed the opinion that all chemical

compounds are "useful" to the chemical arts when this term is given its broadest reasonable interpretation. However, the court held that this broad interpretation was not the intended definition of "useful" as it appears in 35 U.S.C 101, which requires that an invention must have either an immediately obvious or fully disclosed "real word" utility. The instant claims drawn to p62 (1-393) or pharmaceutical compositions thereof have little medical significance.

Paragraph [0038] of the specification contains more information on the physiological importance of inhibiting NF-6B translocation, stating, "[I]nhibiting NF-6B translocation prevents NF-6B from activating the gene normally expressed when NF-6B binds to a regulatory region of the target gene. Thus, inhibiting NF-6B translocation, in affect [sic, effect], limits, if not completely blocks the transcription of genes that are normally expressed by the binding of NF-6B to a regulatory region of a gene." This discussion provides a circular conclusion, however, since there is no discussion of what genes are normally expressed by the binding of NF-6B to a regulatory region of a gene. What genes are these? With no specific genes targeted, the asserted utility cannot be considered to be a specific utility.

With regard to substantial utility, the claimed polypeptides are not supported by a substantial utility because the function of inhibiting the translocation of activated NF-6B across a nucleic membrane has not been shown to have any practical effect on the patient to whom the p62 (1-393) has been administered. A substantial utility is one that has "real-world" applicability. The research that has gone into the instant invention is

extremely interesting in elucidating the function of p62 (1-393) but the final step of establishing what the polypeptide actually treats has not been performed.

Because the claimed invention is not supported by a specific and substantial asserted utility for the reasons above, credibility of the asserted utility has not been evaluated.

Claims 1-16 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a specific and substantial asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

Conclusion

10. No claim is allowed.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert A. Wax whose telephone number is (571) 272-0623. The examiner can normally be reached on Monday through Friday from 9:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jon P. Weber can be reached on (571) 272-0925. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Robert A. Wax
Primary Examiner
Art Unit 1653

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